

**CLAIMS:**

1           1.       A method of providing secure communications between a first wireless  
2 unit and a second wireless unit, said method comprising the step of:  
3           providing a common key value to a first wireless unit and for use in secure  
4 communications over at least one wireless communications system between said first  
5 wireless unit and said second wireless unit having said common key.

1           2.       The method of claim 1 wherein said step of providing comprising the  
2 steps of:  
3           generating a first key value corresponding to said first wireless unit;  
4           generating a common key value; and  
5           sending said common key value to said first wireless unit using said first key  
6 value.

1           3.       The method of claim 2 comprising the steps of:  
2           generating a second key value corresponding to said second wireless unit; and  
3           sending said common key value to said second wireless unit using said second  
4 key value.

1           4.       The method of claim 2 wherein said step of generating comprises the  
2 step of:  
3           generating said first key value as a function of a first root key known only at  
4 said first wireless unit and a home wireless communications system for said first  
5 wireless unit.

1           5.       The method of claim 3 wherein said step of generating comprises the  
2 step of:

3           generating said second key value as a function of a second root key known  
4   only at said second wireless unit and at a home wireless communications system for  
5   said second wireless unit.

1           6.       The method of claim 2 wherein said step of providing comprises the  
2   steps of:  
3           encrypting said common key using said first key value; and  
4           transmitting said common key encrypted with said first key value to said first  
5   wireless unit.

1           7.       The method of claim 3 wherein said step of providing comprises the  
2   steps of:  
3           encrypting said common key with said second key value; and  
4           transmitting said common key encrypted with said second key value to said  
5   second wireless unit.

1           8.       The method of claim 2 wherein said step of generating said common  
2   key value comprises the steps of:  
3           generating said common key as a function of at least one of said first key value  
4   and said second key value.

1           9.       The method of claim 1 comprising the step of:  
2   generating said common key as an encryption key.

1           10.      The method of claim 1 comprising the step of:  
2   generating said common key as a session key.

1           11.      The method of claim 1 comprising the step of:

2           generating a first session key value as a function of a first root key known only  
3   at said first wireless unit and a home wireless communications system for said first  
4   wireless unit; and  
5           generating said common key as a session encryption key being a function of at  
6   least said first session key value.

1           12.    The method of claim 1 comprising the steps of:  
2           mutually producing said common key by a first wireless communications  
3   system for said first wireless communications system and a second wireless  
4   communications system for said second wireless unit.

1           13.    A method of providing secure communications between a first wireless  
2   unit and a second wireless unit, said method comprising the step of:  
3           receiving by a first wireless unit from at least one wireless communications  
4   system a common key value for use in secure communications over at least one  
5   wireless communications system between said first wireless unit and said second  
6   wireless unit having said common key.

1           14.    The method of claim 13 comprising the steps of:  
2           generating a first key value corresponding to said first wireless unit; and  
3           obtaining said common key value by said first wireless unit using said first  
4   key value.

1           15.    The method of claim 14 comprising the steps of:  
2           generating a second key value corresponding to said second wireless unit; and  
3           obtaining said common key value by said second wireless unit using said  
4   second key value.

1           16.     The method of claim 14 wherein said step of generating comprises the  
2     step of:

3           generating said first key value as a function of a first root key known only at  
4     said first wireless unit and a home wireless communications system for said first  
5     wireless unit.

1           17.     The method of claim 14 wherein said step of providing comprises the  
2     steps of:

3           decrypting said common key using said first key value.

1           18.     The method of claim 13 comprising the step of:  
2     receiving said common key as an encryption key.

1           19.     The method of claim 13 comprising the step of:  
2     receiving said common key as a session key.

1           20.     The method of claim 13 comprising the steps of:  
2     generating a first session key value as a function of a first root key known only  
3     at said first wireless unit and a home wireless communications system for said first  
4     wireless unit; and  
5     receiving said common key as a session encryption key being a function of at  
6     least said first session key value.